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| 09/634,243 | 08/08/2000 | Yukito Kawahara | S004-4049 | 2427 |

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EXAMINER

KIBLER, VIRGINIA M

| ART UNIT | PAPER NUMBER |
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2623

DATE MAILED: 12/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/634,243

Applicant(s)

KAWAHARA ET AL.

Examiner

Virginia M Kibler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14-17 and 19-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-17, 19-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-6, 9-12, 14-17, 19, 20, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (6,191,410) in view of Fujieda et al. (5,446,290).

Regarding claim 1, Johnson discloses a fingerprint reading device including an active matrix liquid crystal cell 22 (Col. 4, lines 43-47) having a front surface facing a user and a rear surface opposing the front surface (Figure 3), an illumination source 21 for projecting a light from the rear surface to the front surface of the active matrix liquid crystal cell (Col. 4, lines 39-40), a flat light guiding plate 1 on the front surface of the active matrix liquid crystal cell for transmitting the light projected from the rear surface of the active matrix liquid crystal cell and deflecting light entering from the front surface toward a side end surface of the light guiding plate (Figure 3), light receiving means 3 on the side end surface of the light guiding plate for receiving the deflected light exiting from the side end surface of the light guiding plate (Figure 3), and a drive circuit for driving the active matrix liquid crystal cell to pinpoint-irradiate a fingerprint in contact with the light guiding plate by pinpointing with the light emitted from the illumination source and causing the light receiving means to pinpoint-receive the light reflected by the fingerprint and thereby obtain an image of the fingerprint (Col. 1, lines 46-49; Col. 2, lines 57-67 and Col. 3, lines 1-16). Johnson does not disclose a flat light guiding plate having

parallel opposed main faces. However, Fujieda et al. ("Fujieda") teaches that it is known to use a flat light guiding plate 13 having parallel opposed main faces in a fingerprint reading device (Col. 4, lines 39-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the flat light guiding plate disclosed by Johnson to include one with parallel opposed main faces as taught by Fujieda because the arrangement is advantageous in that the amount of light and color can be controlled (Col. 6, lines 1-24).

Regarding claim 2, Johnson discloses the active matrix liquid crystal cell comprising a liquid crystal cell of a liquid crystal display device (Col. 1, lines 46-49).

Regarding claim 5, Johnson discloses the light receiving means comprising a light receiving element 3 and a lens 23 for converging on the light receiving element the light exiting from the side end surface of the light guiding plate (Figure 3).

Regarding claim 6, Johnson discloses a method for providing an active matrix liquid crystal cell (Col. 4, lines 43-47), an illuminating means 21 for projecting light from a rear surface of the active matrix liquid crystal cell (Col. 4, lines 39-40), a light guiding plate 1 on a front surface of the active matrix liquid crystal cell opposite the rear surface for receiving the light coming from the rear surface and deflecting the received light toward a side end surface of the light guiding plate (Figure 3), selectively pinpoint-irradiating a fingerprint touching a front surface of the light guiding plate through the active matrix liquid crystal cell with the light projected from the rear surface of the active matrix liquid crystal cell (Col. 4, lines 43-47), receiving the light 3 reflected by the fingerprint and exiting from the side end surface of the light guiding plate (Figure 3), and using the received light reflected by the fingerprint to obtain an image of the fingerprint (Col. 2, lines 57-67 and Col. 3, lines 1-16). Johnson does not disclose a

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flat light guiding plate having parallel opposed main faces. However, Fujieda et al. ("Fujieda") teaches that it is known to use a flat light guiding plate 13 having parallel opposed main faces in a fingerprint reading device (Col. 4, lines 39-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the flat light guiding plate disclosed by Johnson to include one with parallel opposed main faces as taught by Fujieda because the arrangement is advantageous in that the amount of light and color can be controlled (Col. 6, lines 1-24).

Regarding claim 10, Johnson discloses the side end surface 8 of the light guiding plate 1 is disposed at a right angle with respect to the front and rear surfaces of the active matrix liquid crystal cell 22 (Figure 3).

Regarding claim 11, the arguments analogous to those presented above for claim 1 are applicable to claim 11. Johnson discloses a fingerprint reading device including a liquid crystal cell having a plurality of separately addressable pixels (Col. 4, lines 39-40), a front surface facing a user and a rear surface opposite the front surface (Figure 3), an illumination device 21 for projecting light from behind the rear surface through the front surface of the liquid crystal cell to illuminate a finger place over the front surface (Figure 3), a light receiving device 3 for receiving light reflected by the finger, and a drive circuit for sequentially driving the respective pixels of the liquid crystal cell (Col. 4, lines 39-47) to project light from the illumination device onto the finger so that an image of the finger can be obtained based on the reflected light (Col. 2, lines 57-67 and Col. 3, lines 1-16). Johnson does not disclose a flat light guiding plate having parallel opposed main faces. However, Fujieda et al. ("Fujieda") teaches that it is known to use a flat light guiding plate 13 having parallel opposed main faces in a fingerprint reading device

(Col. 4, lines 39-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the flat light guiding plate disclosed by Johnson to include one with parallel opposed main faces as taught by Fujieda because the arrangement is advantageous in that the amount of light and color can be controlled (Col. 6, lines 1-24).

Regarding claim 12, Johnson discloses an active matrix liquid crystal cell (Col. 4, lines 43-47).

Regarding claim 14, Johnson discloses the light receiving device 3 disposed adjacent to the side end surface of the light guiding plate 1 for receiving the deflected light (Figure 3).

Regarding claim 15, the arguments analogous to those presented above for claim 5 are applicable to claim 15.

Regarding claim 16, Johnson discloses a drive circuit controlling the liquid crystal cell by sequentially activating respective pixels thereof so that the light emitted by the illumination device is irradiated onto the fingerprint pixel by pixel (Col. 4, lines 39-55) and light reflected by the fingerprint is received by the light receiving device 3 so that an image of the finger can be obtained (Col. 2, lines 66-67 and Col. 3, lines 1-16).

Regarding claim 19, the arguments analogous to those presented above for claim 10 are applicable to claim 19.

Regarding claim 20, the arguments analogous to those presented above for claim 2 are applicable to claim 20.

Regarding claims 4 and 17, Johnson discloses a light receiving sensor provided along the side end surface of the light guiding plate (Figure 3). Johnson does not appear to specify the light receiving means including a line sensor. However, Johnson discloses using a grid of

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receptors as the light receiving sensors (Col. 2, lines 42-44). Therefore, in light of Johnson's disclosure it would have been obvious to one of ordinary skill in the art to have modified the light receiving sensor to include a line sensor because it is well known in the art and would be an obvious matter of design choice.

Regarding claims 9 and 26, Johnson does not appear to specify the resolution and the pitch of the active matrix liquid crystal cell. However, in light of Johnson's disclosure this would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the active matrix liquid crystal cell disclosed by Johnson to expressly state a specific resolution and pitch as a design parameter.

3. Claims 3, 7, 8, and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (6,191,410) and Fujieda et al. (5,446,290) as applied to claims 1 and 11 above, and further in view of Young (5,869,791).

Regarding claims 7 and 24, Johnson and Fujieda do not appear to explicitly state a matrix of transparent electrodes driven by thin film switching elements. However, Young teaches that it is known to use an active matrix liquid crystal cell (Col. 3, lines 49-53) with a matrix of transparent (Col. 3, lines 40-41) electrodes driven by thin film switching elements (Col. 3, lines 57-66). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the active matrix liquid crystal cell disclosed by Johnson and Fujieda to expressly state a matrix of transparent electrodes driven by thin film switching element, as taught by Young, because it is well known in the art and will allow it to be integrated with a LCD panel (Col. 3, lines 49-53).

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Regarding claims 8 and 25, the arguments analogous to those presented above for claim 7 are applicable to claims 8 and 25. Young discloses the thin film switching elements comprising TFTs (Col. 3, lines 57-66).

Regarding claims 3 and 23, the arguments analogous to those presented above for claim 7 are applicable to claims 3 and 23. Young discloses the active matrix liquid crystal cell provided in superposition on part of a liquid crystal cell of a LCD device (Col. 3, lines 49-57).

Regarding claim 21, the arguments analogous to those presented above for claim 7 are applicable to claim 21. Young discloses an active matrix liquid crystal cell including a first transparent substrate 14, a second transparent substrate 45, a spacer joining the first and second transparent substrates so that a gap is formed there between, a layer of liquid crystal material 48 filled in the gap, and a plurality of pixel elements arranged in a matrix for altering the light transmission characteristics of the liquid crystal material (Col. 10, lines 52-67).

Regarding claim 22, the arguments analogous to those presented above for claim 7 are applicable to claim 22. Young discloses the pixel elements comprising a transparent electrode and an active switching element formed on one of the transparent substrates facing the liquid crystal material layer (Col. 10, lines 60-67).

Response to Arguments

4. Applicant's arguments with respect to claims 1-12, 14-17, and 19-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

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VK
12/11/03

**MEHRDAD DASTOURI
PRIMARY EXAMINER**

Mehrdad Dastouri